



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,943	11/18/2003	Boris Y. Rozenoyer	FM-219J	4457

7590

12/17/2004

IANDIORIO & TESKA
INTELLECTUAL PROPERTY LAW ATTORNEYS
260 BEAR HILL ROAD
WALTHAM, MA 02451-1018

EXAMINER

MAI, NGOCLAN THI

ART UNIT PAPER NUMBER

1742

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,943

Applicant(s)

ROZENOYER ET AL.

Examiner

Ngoclan T. Mai

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 14-28, and 32-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ritland et al.

Ritland et al disclose a ceramic-metal composite formed by contacting a porous ceramic matrix material with a molten metal whereby capillary action pulls the metal into the ceramic matrix material to substantially fill the void space. Ritland et al also disclose forming a composite by presintering a green body of alumina powder, sintering the presintered body and infiltrating the sintered body with molten copper to form a composite having a strength of about 112 ksi, col. 10, lines 12-43. Note that the presintering reads on the claimed partly sintering ceramic particle.

The difference between claim and Ritland et al is that Ritland et al do not specifically teach the composite is an isotropic metal matrix composite.

However it is commonly known in the art that isotropic composites are generally obtained when reinforcers, i.e. ceramic matrix material, are formed of powders or whisker. (See US patent No. 4,861,679, col. 1, lines 60-64. The document is cited

merely for showing this fact but not applied in the rejection). Thus the composite taught by Ritland et al inherently has isotropic properties.

Regarding claims 3-4, 14, 15, 17, 19-20, 24, 26, 27 and 32-33, it appears the claimed properties such as high temperature strength retention, high temperature stiffness retention and coefficient of thermal expansion are material properties. Consequently, the properties as recited in the instant claims would have inherently possessed by the teachings of the cited reference. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. In re Spade, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990), In re Best, 195 USPQ 430 and MPEP § 2112.01.

Regarding claims 5, 18, 21, 23, 27 and 28, Ritland et al disclose preform having the claimed average pore size, interconnected porosity, and open porosity in col. 10, lines 30-33. Since it is made by the same material, e.g., alumina and has the structure as claimed, it inherently has the claimed flexure strength.

Regarding claims 6-7 and 35-36, the alumina powders of CERALOX HPA) used by Ritland et al in col. 10, lines 12-14 are commonly known to be substantially pure and have the claimed purity. (See US patent No. 5,024,976, col. 4, lines 13-17. The document is cited merely for showing this fact but not applied in the rejection).

Regarding claims 9-10 and 38-39, Ritland et al disclose these limitations in col. 4, lines 48-66.

Art Unit: 1742

Regarding claims 8 and 37, the infiltrant metal taught by Ritland et al in col. 4, lines 59-66 is inherently selected to not chemical react with the preform since there is no chemical reaction between the metal and the ceramic matrix material disclosed by Ritland et al.

Note that if applicant contends that partly sintering is not the same as presintering, the claimed composite still reads on applicant's composite since there is no distinction between the claimed metal matrix composite and the ceramic-metal composite taught by Ritland et al.

It has been established that a product by process claim is directed to the product per se, no matter how actually made, *In re Kirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Thorpe*, 227 USPQ 964 (CAFC 1985), which makes it clear that it is the patentability of the final product per se which must be determined in a product by process claim and not the patentability of the process. An old or obvious product produced by a new method is not patentable as a product, whether claimed in a product by process claims or not. Note that applicant has the burden of proof in such case.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1742

4. Claims 11, 12, 13, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritland et al.

Ritland et al. disclose the metal matrix composite substantially as claimed. The difference between Ritland et al is that Ritland et al do not teach employing substantially pure aluminum and in the amount claimed by the applicant.

Ritland et al however teach high-grade metal can advantageously selected depending on the intended application of the ceramic-metal composite material. It would have been obvious to one of ordinary skill in the art at the time the invention was made if the ceramic-metal compositions material taught by Ritland et al are for use in an environment where high purity is required, that either or both of the infiltrant metal and ceramic be employed so that not only they will not interfere with environment in which they are used but using them would produce high quality product. Determination of a preferred aluminum type or an optimum purity of the metal powder used to obtain desired result is within the level of the skill artisan and would have been obvious.

5. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritland et al.

The difference between Ritland et al and the claims is that Ritland et al do not teach subjecting the preform to molten metal under pressure such as by pressure or squeeze casting.

However it is known in the art to infiltrate a preform with molten metal by contacting it molten metal under pressure such as by squeeze or pressure casting, see


Art Unit: 1742

Ritland et al. col. 1, lines 42-50. It would have been obvious to one of ordinary skill in the art to infiltrate molten metal into the preform taught by Ritland et al. by the above methods which is well known and commonly used for such purpose.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 9:30-6:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ngoclan T. Mai
Primary Examiner
Art Unit 1742

n.m.